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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hiroaki Munehira

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09/26/2006

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EXAMINER

WANG, QUAN ZHEN

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/089,156

Applicant(s)

MUNEHIRA ET AL.

Examiner

Quan-Zhen Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/9/06, 7/24/06
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on July 14, 2006 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerfoot et al. (U.S. Patent US 6,704,511 B1).

Regarding claims 1 and 7, Kerfoot discloses a wavelength division multiplexing and optical transmission apparatus (fig. 3) comprising: a plurality of optical transmitting units (fig. 3, transmitter 150) for modulating a plurality of laser signals (fig. 3, laser signal

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outputted from laser 152) having inherent wavelength with a plurality of data signals (fig. 3, data information 158) and outputting a plurality of modulated optical signals (fig. 3, output from modulator 154); optical amplifying means (fig. 3, broadband noise source 138; column 3, lines 43-60) with non-input and for outputting an amplified spontaneous emission light signal; band pass filter means (fig. 3, filter 140) for band pass filtering the output of the amplifying means and outputting a non-modulated spectrum slice optical signals; and optical multiplexing means (fig. 3, MUX 132) for multiplexing the non-modulated spectrum slice optical signals as a dummy signal of an optical signal to be added in the future with the modulated optical signals and transmitting a multiplexed optical signal (column 3, line 43 to column 4, line 42), the bandpass filter means includes a first and second plurality of band pass filters (fig. 5, filters 143.1-143.3 and filters 143.4-143.6). Kerfoot differs from the claimed invention in that Kerfoot does not specifically disclose a second optical amplifier connected to the bandpass filter means. However, it is well known in the art to utilize an optical amplifier to amplify optical signals. For example, Kerfoot disclose to use an optical amplifier (fig. 3, amplifier 156) to amplify a modulated optical signal. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate optical amplifiers connected to the bandpass filter means for the filters dummy signals, as it is used for the modulated signal, in order to boost the optical power of the filters dummy signals to appropriate level.

Regarding claims 3 and 9, Kerfoot further teaches that the optical amplifying means comprises optical amplifier having a signal input terminal terminated at no-

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reflection (column 3, lines 53-56), and the band passing filter means comprises a light dividing element (fig. 5, DEMUX 144) for dividing the amplified spontaneous emission light signal output by the optical amplifier into a plurality of amplified spontaneous emission light signals, and a plurality of optical band pass filters (fig. 5, filters 143.1 to 143.6), connected to a plurality of divided output terminals of the light dividing element respectively, for outputting the non-modulated spectrum slice optical signal.

Regarding claims 2 and 8, the prior art fig. 1, Kerfoot further teach that the optical amplifying means comprises optical amplifier having a signal input terminal terminated at no-reflection (column 3, lines 53-56). Kerfoot differs from the claimed invention in that Kerfoot does not specifically teach that the optical amplifier means comprises a pair of optical amplifiers. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ more than one optical amplifier for the optical amplification means since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claims 4 and 10, Kerfoot has been discussed in regard with claims 1, 3, 7, and 9 above. Kerfoot further teaches an optical multiplexer (fig. 5, MUX 146) for multiplexing two or more outputs of the optical band pass filters with each other and outputting the non-modulated spectrum slice optical signals, and controlling a power of the output to a constant value (column 3, lines 57-60). Kerfoot differs from the claimed invention in that Kerfoot does not specifically teach an optical amplifier for amplifying an output of the optical multiplexer. However, an optical amplifier is well known in the art

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and is widely used to amplify optical signals wherever needed. For example, Kerfoot discloses to use an optical amplifier (fig. 3, amplifier 156) to amplify the modulated signal. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical amplifier for amplifying an output of the non-modulated signals in order to boost the power strength of the ASE source used for dummy optical signals.

4. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerfoot et al. (U.S. Patent US 6,704,511 B1) in view of Alphonsus et al. (U.S. Patent US 5,764,405).

Regarding claims 5 and 11, the prior art fig. 1, Kerfoot has been discussed above in regard with the rejection for claims 1 and 2. Kerfoot differs from the claimed invention in that Kerfoot does not specifically teach that the optical amplifying means comprises a plurality of pumping laser signal sources connected to the optical amplifier redundantly. However, it is well known in the art that redundant pumping lasers are used to provide for a virtually non-failing optical amplifier. For example, Alphonsus teaches to use redundant pump lasers (fig. 2, Pumps 50) to provide for a virtually non-failing optical amplifier (column 4, lines 21-32). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an amplifier with redundant pump sources, as it is taught by Alphonsus, along the transmission line, in the system of Kerfoot in order to boost the ASE power strength for dummy optical signals and provide reliable transmission system.

5. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerfoot et al. (U.S. Patent US 6,704,511 B1) in view of Mathis (U.S. Patent US 4,726,644).

Regarding claims 6 and 12, the prior art fig. 1, Kerfoot has been discussed above in regard with the rejection for claim 1. Kerfoot differs from the claimed invention in that Kerfoot does not specifically teach that the band pass filtering means comprises a plurality of optical band pass filters connected in cascade. However, it is well known in the art to cascade two or more band pass filters. For example, Mathis teaches to connect two filters in cascade (column 9, lines 44-50). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use a plurality of optical band pass filters connected in cascade, as it is taught by Mathis, in the system of Kerfoot in order to provide multiple stage of bandpass filtering with a narrower pass band.

### ***Response to Arguments***

6. Applicant's arguments filed one July 14, 2006 have been carefully considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571)


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272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw  
2/8/2006

  
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SUPERVISORY PATENT EXAMINER  
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